the medulla oblongata of the cat, made in the region of the posterior root of the auditory nerve (N. cochleae), and in which, among others, there was a very clearly defined bundle of fibres which, in the neighborhood of the tuberculum acusticum, stood in connection with the N. cochleae, then passed on the dorsal and mesial side of the corpus restiforme, and finally bent downwards to the superior olive of the same side. The course of the lateral portion of this bundle is similar to that of the striae acusticae of man, but in its mesial portion it is quite different. In answer to a question whether he had observed in the cat anything analogous to the bundle found in man, Baginsky replied in the negative. This led Virchow to make a presentation of what was known and inferred regarding this bundle. Reviewing the macroscopic course and relations of the striae acusticae in man as given by Henle and others, Virchow takes occasion to remark the need of a careful microscopic examination in these cases, something which is rarely undertaken.

On a series of sections in his possession, which were not made for this purpose, Virchow finds the striae acusticae passing from the N. acusticus as a plain bundle of fibres toward the middle line, and there turning ventrad in the raphe, in such a manner that the raphe is noticeably dilated by the entrance of the bundle. Further it could not be followed.

The rest of the course to the cortex is probably that described by v. Monakow (see abstract, Am. Jour. of Psychology, Vol. I, p. 330), and by Edinger, who finds in the lower vertebrate forms a bundle of fibres which, starting from the interbrain, run toward the medulla, cross in the middle line as fibrae arcuatae internae, and are distributed to the nuclei of the sensory nerves. This central sensory tract of Edinger is considered by him as homologous with the lemniscus in man. The results of these two investigators are thus seen to be fundamentally in harmony with one another.

Ueber die Bedeutung der Hirnfurchung. J. Seitz. Jahrb. f. Psychiatrie, VII, 3, S. 225.

While the physiological demands made on the basal ganglia are fulfilled by the mere enlargement of the mass, it appears, on the other hand, necessary for the cortex to become folded as we ascend in the animal series. The cause of this is the need for better nutrition, so that the sulci are to be looked upon as nutritive clefts. The position of the sulci is characteristic for each species, and is determined by the blood supply, the general form of the brain, and so indirectly by the form of the skull. In those animals with the largest brains, and in man, the variability and substitution among the secondary sulci is very great, while even where there is the most extensive arrest in the development of the human brain, the human type still remains clearly marked. The brain and skull influence one another to some degree in their growth.

Beitrag zur Morphologie und Morphogenese des Gehirnstammes. G. Jelgersma. Uebersetzt von Kurella, Centralbl. f. Nervenheilk. X, 18-20, S. 545.

Jelgersma investigated five idiot brains, among which were two that were pathological in one hemisphere only. From this study he concludes that there are three systems of nervous elements in

the brain and oblongata. 1. The intellectual tracts and centres which atrophy in case of a primary affection of the intellect. 2. Association tracts between the intellectual centres and the reflex arcs, *i. e.* the pyramidal tracts and the lemniscus. 3. The reflex arcs, a continuation of the centres in the cord, *i. e.* the primary centres of the nerves arising in the oblongata, and their connections with one another. The so-called secondary degeneration never passes from the psychical system (1) to the reflex system (3). In consequence of the lesion of one system, another centre of the same system atrophies only when there is connection through the axis cylinder prolongation. Within the same system the ganglion cells also atrophy. The author supports his views by evidence from embryology and comparative anatomy.

Ueber die Schwankungen in der Entwickelung der Gehirngefässe und deren Bedeutung in physiologischer und pathogenetischer Hinsicht. L. LOEWENFELD. Arch. f. Psychiatrie und Nervenkr. XVIII, 3, S. 819.

Neither the weight of the brain nor the convoluting of its surface is to be considered as reliable expressions of intellectual development, for they are modified by the length and weight of the body and the thickness of the cortex. To these L. adds another factor, namely, the blood supply considered as the index of the nutrition of the brain. L. compared the section of the basalar carotids and vertebrales, the weight of the brain and the section of the aorta on 200 brains. On the 122 brains which had normal vessels it was plain that within the limits of health there was considerable variation in the section of the basalar vessels, the relative diameter of blood-vessel for each 100 grm. of brain varying between 0.175 and 0.315 cm. The average size of the vessels increases somewhat with age. Between the section of the aorta and that of the basalar vessels there is no constant relation. The capability of continuous exertion and the development of talent depends not only on the other acknowledged factors, but also on the development of the blood-vessels of the brain. It may be added that the carotids were found 12 times alike, and 31 times with the right, 49 times with the left, the larger.

Clinical Lecture on Paralysis of the Fifth Cranial Nerve. D. FERRIER. The Lancet, 1888, No. 3358, p. 1; Gaz. Med. de Paris, 1888, No. 4, p. 37.

The case discussed was an isolated total paralysis of the fifth, on the right side, resulting from an injury to the head. The innervation of the palate remained intact, so that the view of Vulpian, and Beevor and Horsley, that the azygos uvulae and tensor palati have no connection with the fifth, demonstrated on animals, is found true for man. The absence of hyperacusis for high tones, as well as the absence of a subjective sensation of buzzing in the ear, is taken by F. as an indication that the tympanum is not innervated by the fifth. The ophthalmia on the same side F. holds to be neuroparalytic, considering that it is caused by the inflammatory excitation of nerve fibres which are not specifically different from motor, secretory and sensory fibres, and not by separation from a trophic centre. On the two anterior thirds of the tongue the sense of taste